Signal Processing in Neural Networks (SPiNN)
Frequently Asked Questions Document
Updated 1/16/2020

1. Will foreign entities be considered eligible through the SPiNN Solicitation?
    a. Yes, please refer to Section 4.1.2 of DARPA-PA-19-03.

2. Are you expecting all elements to be machine learning based?
    a. Yes, we expect a machine learning instantiation for each of the four required elements.

3. Is the machine learning model using GAN a requirement?
    a. Yes.

4. What FPGA Emulator or Target Environment/Platform are developers expected to utilize for the Phase 2 for demonstration of our SPiNN adaptive neural network (NN) kernels?
    a. This has been left up to the proposer to decide since each proposer may have a preferred emulator or environment based on their unique application or previous usage.

5. Are the neural network (NN) signal processing kernels required to be verifiable for ALL inputs against baseline algorithms, or only the specific subset of examples used to train on?
    a. Trained NN's are expected to function for trained and untrained inputs with equivalent accuracy to the traditional analytical approach but not necessarily with the exact same output for each case. It may be good in verification to plan to provide results for the SPiNN NN's for both trained and untrained data as separate figures if they are expected to vary widely in accuracy.

6. What determines verification of accuracy?
    a. The verification of accuracy will be to compare the new approach accuracy against the baseline approach.

7. Is there a set library of these baseline algorithms that will be used for reference?
    a. It is expected that the baseline algorithms will be provided by the performer due to the fact that they will be based on specific performer proposed applications.

8. Are performers required to successfully pass milestones prior to payment?
    a. OT payment is based on completion of the milestone and can completed without metric evaluation. Metrics are only evaluated at the end of phases to progress toward future options.

9. Are "Physics Based" models the same as "analytical models?"
    a. Yes

10. The Phase 2 Technical Approach refers to "FPGA emulated on cloud service". Does this technical approach request an implementation using FPGA hardware hosted on a cloud service such as Amazon Web Services, or does this technical approach request an implementation emulating an

FPGA using a software simulator running on cloud based virtual machines which do not utilize FPGA hardware instances?

a. It is expected that performers may purchase FPGA's to do initial testing of individual signal processing elements. But that it is possible that the Phase 2 instantiation may not fit on one or even several FPGA's. Therefore the performers are encouraged (if necessary) to use cloud resources rather than to purchase large quantities of FPGA's to achieve a full pipeline emulation. Proposers are encouraged to use an approach that ports most cleanly and most accurately represents the operation of future hardware implementation.